TA-535

951

Canadian Model
AEP Model
E Model
UK Model
SCN Model

INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

GENERAL

Power Requirements:
120 V ac, 60 Hz (Canadian model)
220 V ac, 50 Hz (AEP, SCN model)
240 V ac, 50 Hz (UK model)
120, 220 or 240 V ac adjustable, 50/60 Hz (E model)

Power Consumption:
145 W (Canadian model)
275 W (AEP, E, SCN model)
360 W (UK model)

AC Outlets:
1 switched (100 W), } Canadian, AEP
2 unswitched (total 200 W) } E, UK, SCN model

Dimensions:
Approx. 430 (w) x 135 (h) x 300 (d) mm
17 (w) x 5 1/4 (h) x 11 7/8 (d) inches
(Canadian model)
430 (w) x 130 (h) x 300 (d) mm
17 (w) x 5 1/8 (h) x 11 7/8 (d) inches
(AEP, UK, E, SCN model)
including projecting parts and controls

Weight:
Approx. 8.1 kg, 17 lb 14 oz (net)
Approx. 9.3 kg, 20 lb 9 oz (in shipping carton)

– Continued on page 2 –

SONY®
SERVICE MANUAL

AMPLIFIER SECTION

Continuous RMS Power Output: [less than 0.05% (8Ω) or 0.06% (4Ω) THD, both channels driven simultaneously] (AEP, UK, E model)

At 1 kHz
43 + 43 W (8 Ω)
43 + 43 W (4 Ω)
At 20 Hz – 20 kHz
40 + 40 W (8 Ω)
40 + 40 W (4 Ω)

According to DIN45500
43 + 43 W (8 Ω)
43 + 43 W (4 Ω)

Power Bandwidth: (IHF) 10 Hz – 40 kHz (8 Ω) (AEP, UK, E model)

Damping Factor: 30 (8 Ω, 1 kHz)

Frequency Response: PHONO RIAA equalization curve ± 0.3 dB

TUNER, AUX, TAPE 1, TAPE 2: 10 Hz – 50 kHz $^{+0}_{-3}$ dB

MIC: 100 Hz – 10 kHz $^{+0}_{-3}$ dB

Power Output and Total Harmonic Distortion: (Canadian model)

With 8 ohm loads, both channels driven, from 20 –20,000 Hz; rated 40 watts per channel minimum RMS power, with no more than 0.05 % total harmonic distortion from 250 milliwatts to rated output.

Inputs:

	Sensitivity	Impedance	Maximum input capability (at 1kHz)	S/N (weighting network, input level)
PHONO	2.5 mV (–50 dB)	50 kΩ	160 mV	80 dB (A, 2.5 mV)
TUNER AUX TAPE 1 TAPE 2	150 mV (–14.5 dB)	50 kΩ	–	95 dB (A, 150 mV)
MIC	2 mV (–51.5 dB)	10 kΩ	–	–

Output:

REC OUT 1, 2	Voltage 150 mV, Impedance 10 kΩ
HEADPHONES	Accepts low and high impedance headphones
SPEAKER	Accepts speakers of 4 – 16 Ω (AEP, E, UK model), 8 – 16 Ω (Canadian model)

Harmonic Distortion: Less than 0.05 % at rated output (8 Ω)
Less than 0.06 % at rated output (4 Ω)

IM Distortion: (60Hz : 7kHz = 4 : 1) Less than 0.05 % at rated output

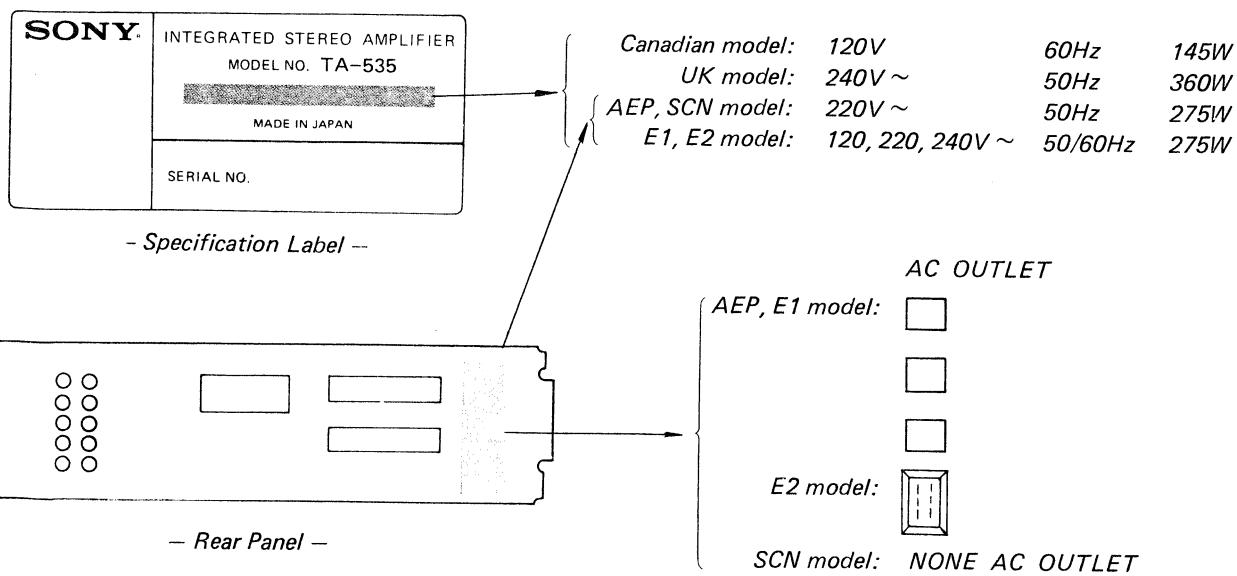
Tone Controls: BASS ± 10 dB at 100 Hz
TREBLE ± 10 dB at 10 kHz

Loudness: (att. 30dB) +9 dB at 100 Hz

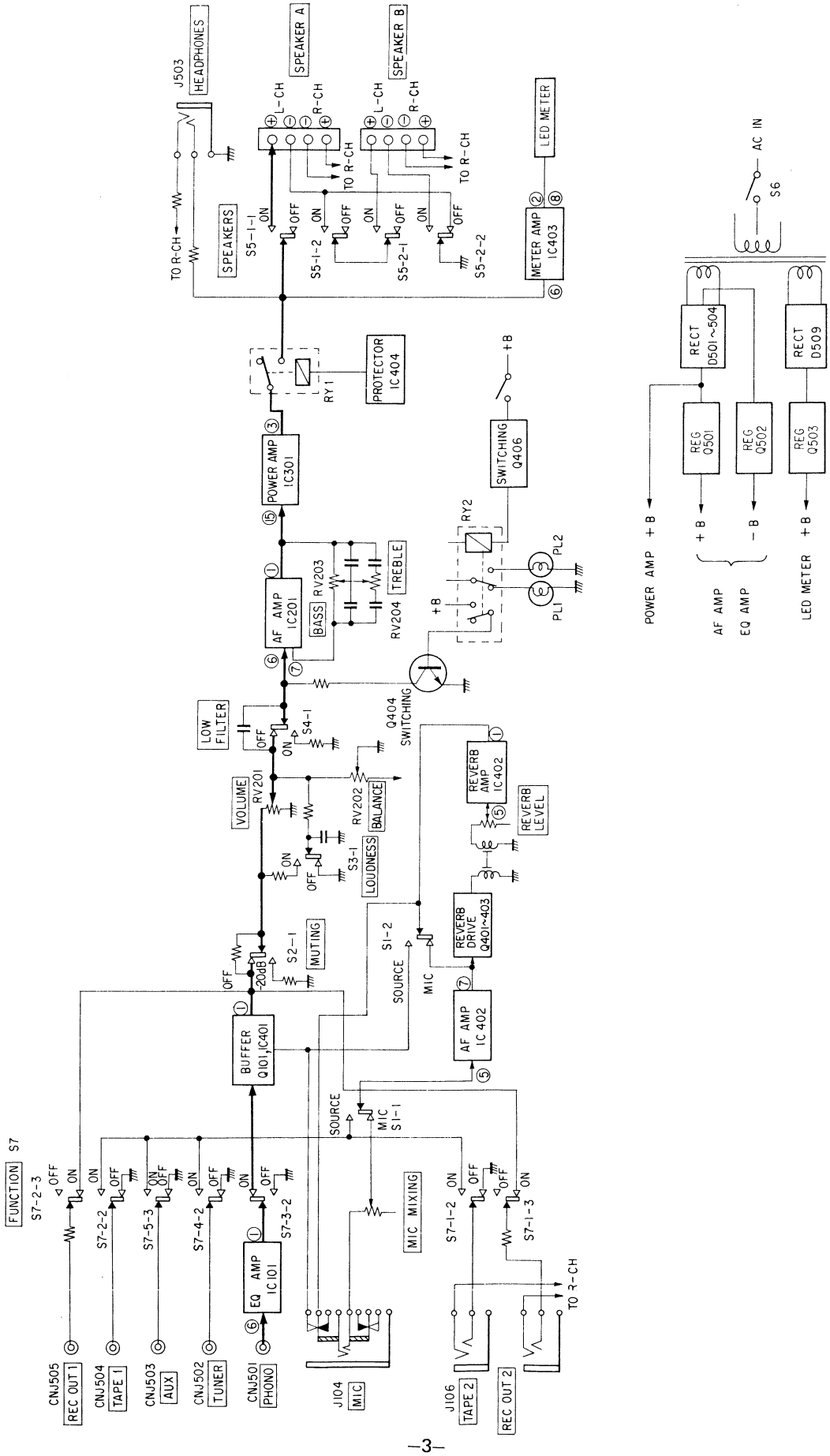
Filter: LOW 6 dB/oct below 30 Hz

0 dB = 0.775 V

MODEL IDENTIFICATIONS



SECTION 1
BLOCK DIAGRAM



SECTION 2
DISASSEMBLY

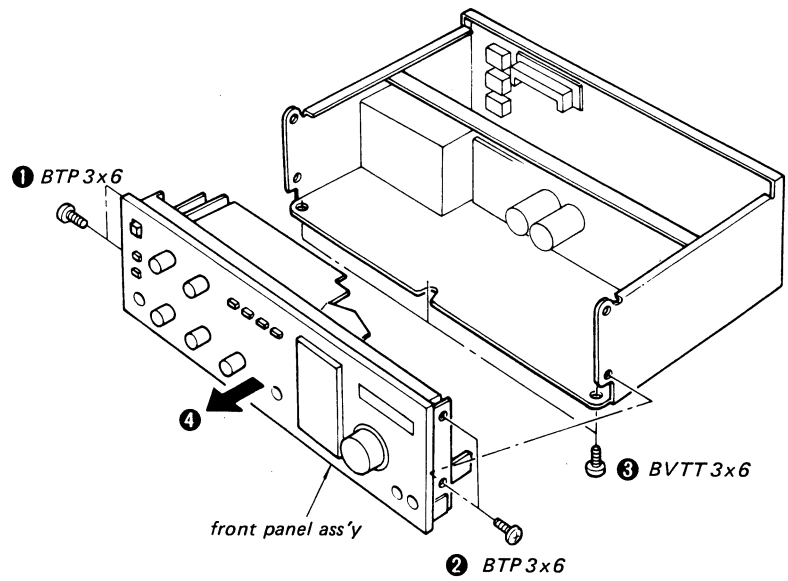
REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

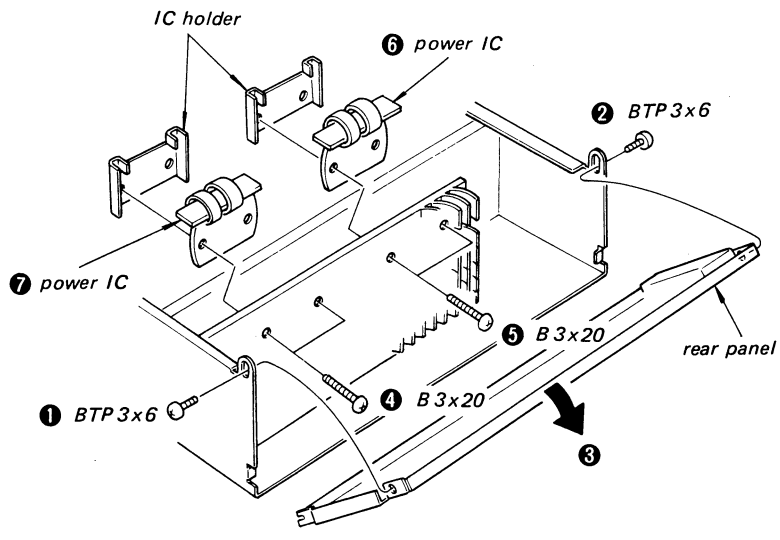
UPPER PANEL

Remove the case assembly by removing 6 case screws.
Tone board can be checked in this condition.

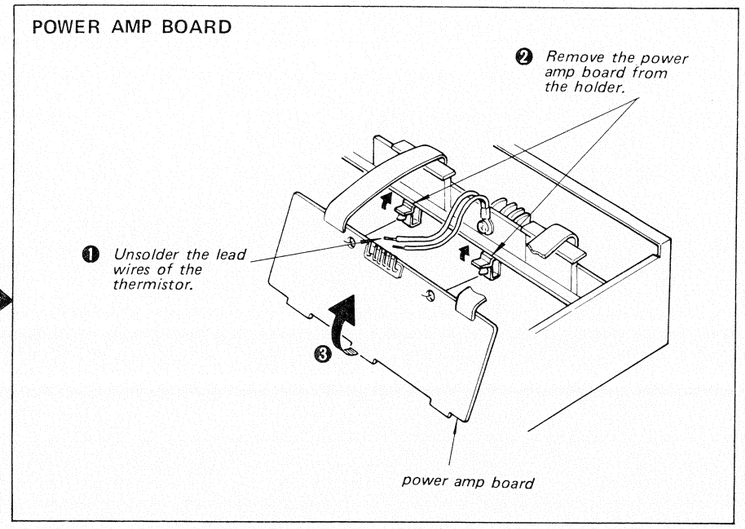
FRONT PANEL



REAR PANEL, POWER IC

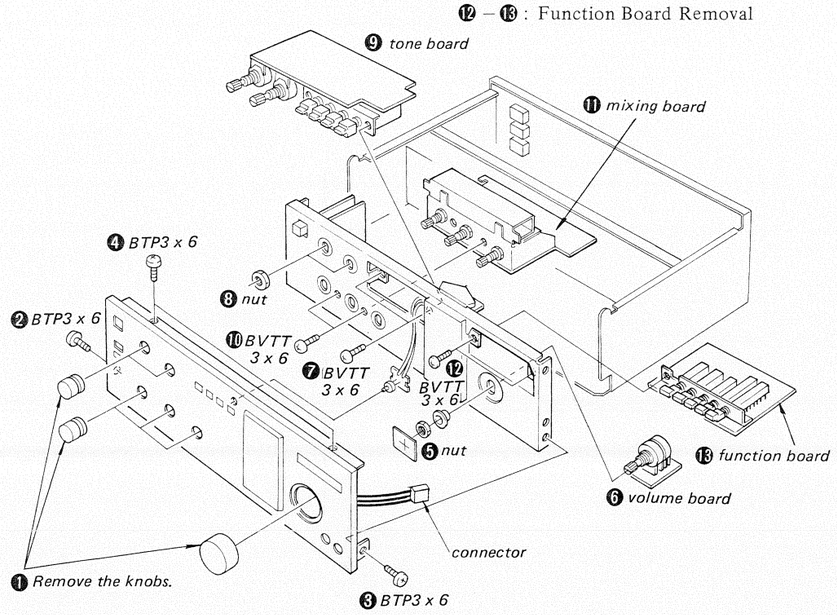


POWER AMP BOARD



CIRCUIT BOARDS

❶ – ❹ : Common to all boards
❺ – ❻ : Volume Board Removal
❼ – ❾ : Tone Board Removal
❿ – ⓫ : Mixing Board Removal
⓬ – ⓭ : Function Board Removal

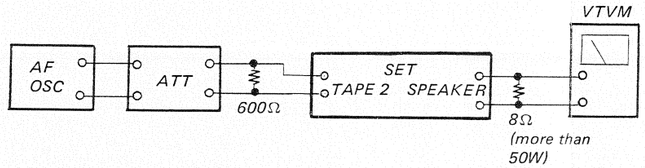


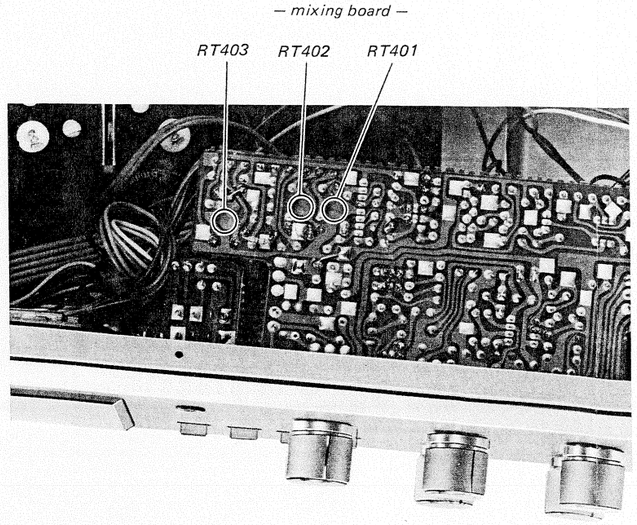
SECTION 3
ADJUSTMENT

ELECTRICAL ADJUSTMENT

LED Meter Adjustment

1. Set the volume within the lower range. Apply 1kHz signal at the jack–TAPE 2. Adjust the input signal with the attenuator so that the voltage at the both side of the speaker is 2.83V (1W).
2. Turn RT403 so that the brightness of the LED of the both channels (L, R) are the same.
3. Turn RT401 and RT402 so that the LED meters of the both channels indicate 1W.
4. Turn the VOLUME to the maximum point and adjust the input signal so that the voltage at both side of the speaker becomes 17.9V (40W). Confirm that the LED meter indicates 40W. If necessary, repeat steps 3 and 4.





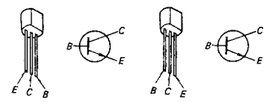
SECTION 4
DIAGRAMS

Replacement Semiconductors

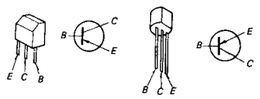
For replacement, use semiconductors except in ( ).

Q101, 151, Q401, Q404–406 : 2SC1364 (2SC1815)

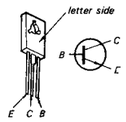
Q402, 503 : 2SC1475 (2SD789)



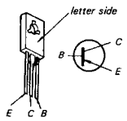
Q403: 2SB605 (2SB740)



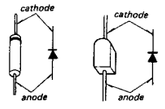
Q501: 2SD809



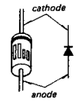
Q502: 2SB731



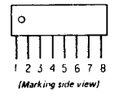
D401–403: 10E2 (RA1Z)



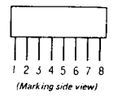
D505, 506 : EQB01-22 (EQA01-22)
D507, 508, 510 : EQB01-15 (EQA01-15)



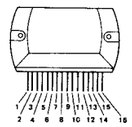
IC101, 151: CX550



IC201, 251: HA1457



IC301, 351: SI1340H (SI11360H)

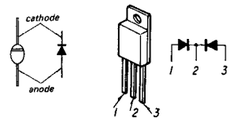


IC401, 402: μPC4558

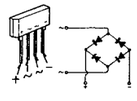
IC403: TA7318P

IC404: HA12002

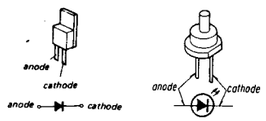
D501–504: U05G (S2V20)



D509: S1VB20 (S1VB10)

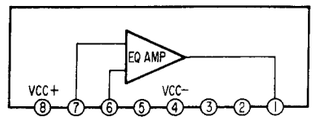


D601–605: GL9HY21
D606: GL9HY21 (GL2PR1)

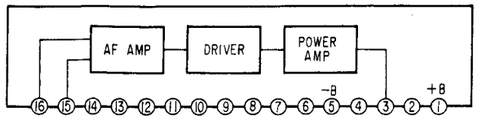


4-1. IC BLOCK DIAGRAMS

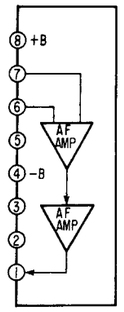
IC101, 151 CX550



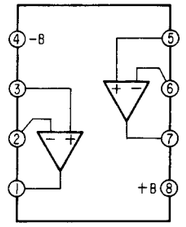
IC301, 351 SI1360H



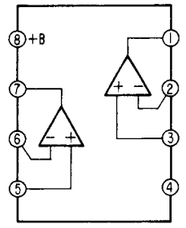
IC201,251 HA1457



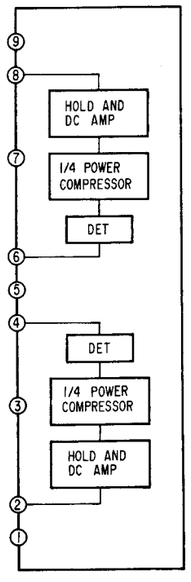
IC401 μPC4558



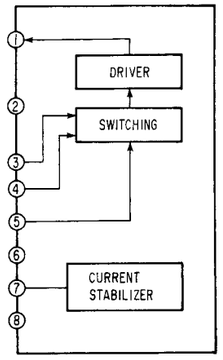
IC402 μPC4558



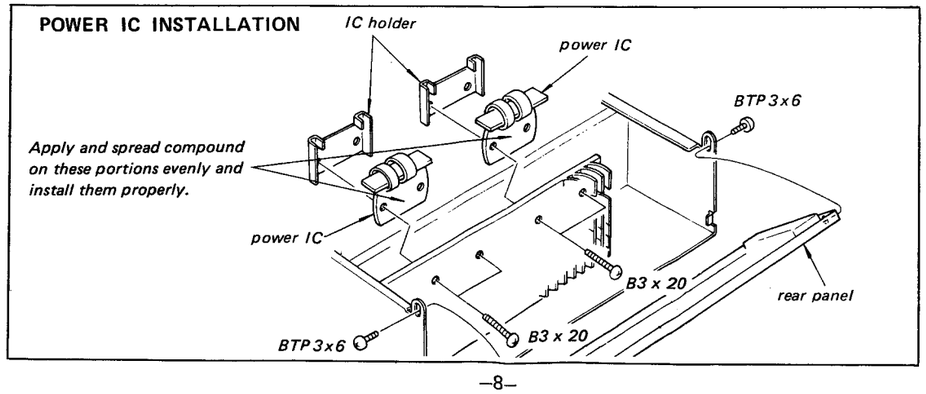
IC403 TA7318P



IC404 HA12002



POWER IC INSTALLATION



4-2. MOUNTING DIAGRAM

– Conductor Side –

| | | |

H I J K L M N O

604	605	402	403	503 502	505,504 501	506	606	507	508	510 509	D
		IC404 IC301	IC201 IC251	501 101 IC401	151	502	IC351			503	Q,IC

D604 D605 TAPE 1 TAPE 2 VIO GRY 11

【 POWER AMP BOARD 】

GCMK-77X SONY

-22V RY1 R470 390 (1W) C471 220 16.3V R358 82k GRY YEL RED WHT BRN 22V C470 1/50V -4.4V D402 4.2V IC404 12k C472 0.025V C473 10 25V R473 2.2k (1W) C474 220 6.3V R475 12k D403 GRN BLK GRN R501 10 (1/4W) 41.5V R472 100k R471 100k R474 6.3k C504 220 50V R503 2.7k 41V 22V D505 Q501 4.1V C508 100/25V C506 100/25V C509 100/25V -41V C505 220 50V R504 2.7k R502 10 (1/4W) D506 Q502 -22V R505 510 (1/4W) C510 220 16V D507 14.5V R506 510 (1/4W) D508 C507 100/25V C511 220/16V -14.5V R510 1.2k C514 100/16V C513 100 16V R508 10 (1/4W) D510 R509 1k R507 2.4k C512 470 25V 13.5V D503 D509 R355 10 (1/2W) R356 10 (1/2W) C355 100 50V C353 100 50V C356 47 10V C357 47 10V L351 1.2μH R354 56k C187 0.5p C358 220 6.3V R352 56k R353 2.7k C352 100p C351 3.3 50V R351 1k C358 0.056 C359 0.056 R358 10 (1/2W) R305 10 (1/2W) R306 10 (1/2W) C305 100 50V C303 100 50V R303 2.7k R302 56k C302 100p C304 220 6.3V R304 56k C186 15p C306 47 10V C307 47 10V L301 1.2μH R301 1k C301 3.3 50V D501 D502 D503 D504 CP501 0.01 500V C502 8200 50V C503 8200 50V -41.5V 41.5V PTH 401 RED BLK WHT (WHT) 11

【 POWER IC BOARD 】 IC301 IC201 IC251 IC401 IC351 0.2V 41.5V -1V -41.5V -0.6V 0.5V 0.6V

AEP MODEL BLU 30 31 BRN PT501 YEL 26 27 28 29 BLK

【 POWER IC BOARD 】 18 19 20 27 28 16 17 11

28 – 31 16 – 21 10 – 12 16 – 21 22 – 25

【 TONE BOARD 】 -22V -1V 19.5V IC201 IC251 IC401 Q101 IVQ151 C215 47/25V C214 47/25V R216 10 R217 10 C205 10/25V R209 560k R259 560k C255 10/25V C266 100p C126 100p R208 680k R207 1k C207 120p C204 15p C206 10/25V R210 100k C203 3.3/50V R258 680k R257 1k C254 15p C256 10/25V R260 100k R123 100k C120 3.3/50V R120 1k R121 430k R122 100k R172 100k R170 1k R171 430k R176 8.2k R175 2.7k R173 100k R174 110k C170 3.3/50V C171 3.3/50V C173 3.3/50V R177 8.2k R178 8.2k R125 2.7k R126 8.2k R124 10k C121 3.3/50V R128 8.2k R127 8.2k C122 180p C123 3.3/50V C172 180p C129 100k R129 100k C251 0.047 C201 0.047 C252 0.1 C202 0.1 R206 33k R256 33k R255 100k R253 33k R205 100k R254 2.2k R252 6.8k R202 6.8k R204 2.2k R201 47k R407 6.8k R408 8.2k R427 5.6k R429 15.6k C253 3.3 50V C263 3.3/50V C212 0.1 R214 3.5k R215 220k R265 220k C213 3.3/50V C108 0.0039 C262 0.1 R264 3.3k C210 47/16V C261 0.015 R262 680 R263 22k 47/16V C258 0.0039 R261 3.9k C211 0.015 R213 22k R211 3.9k C209 0.022 C259 0.022 C260 R212 680 RV254 100k(C) RV204 100k(C) RV253 100k(C) RV203 100k(C) S4 SOURCE MIC REVERB LOW FILTER S3 ON OFF LOUDNESS S2 -20dB OFF MUTING D606 -20dB BASS TONE TREBLE 22 23 24 25

【 VOLUME BOARD 】 21 WHT BRN GRN R460 5k R459 1.2k S8 LAMP SWITCH 14.5V JAPAN RV201-2 250M(B) VOLUME RV201-1 250k(B) GRN YEL BLK RED WHT

【 MIC JACK BOARD 】 J104 MIC YEL ORG RED BRN WHT BLK

【 LED BOARD 】

【 MP BOARD 】 BLU YEL VIO PL2 (YEL) RU401 RED BLU

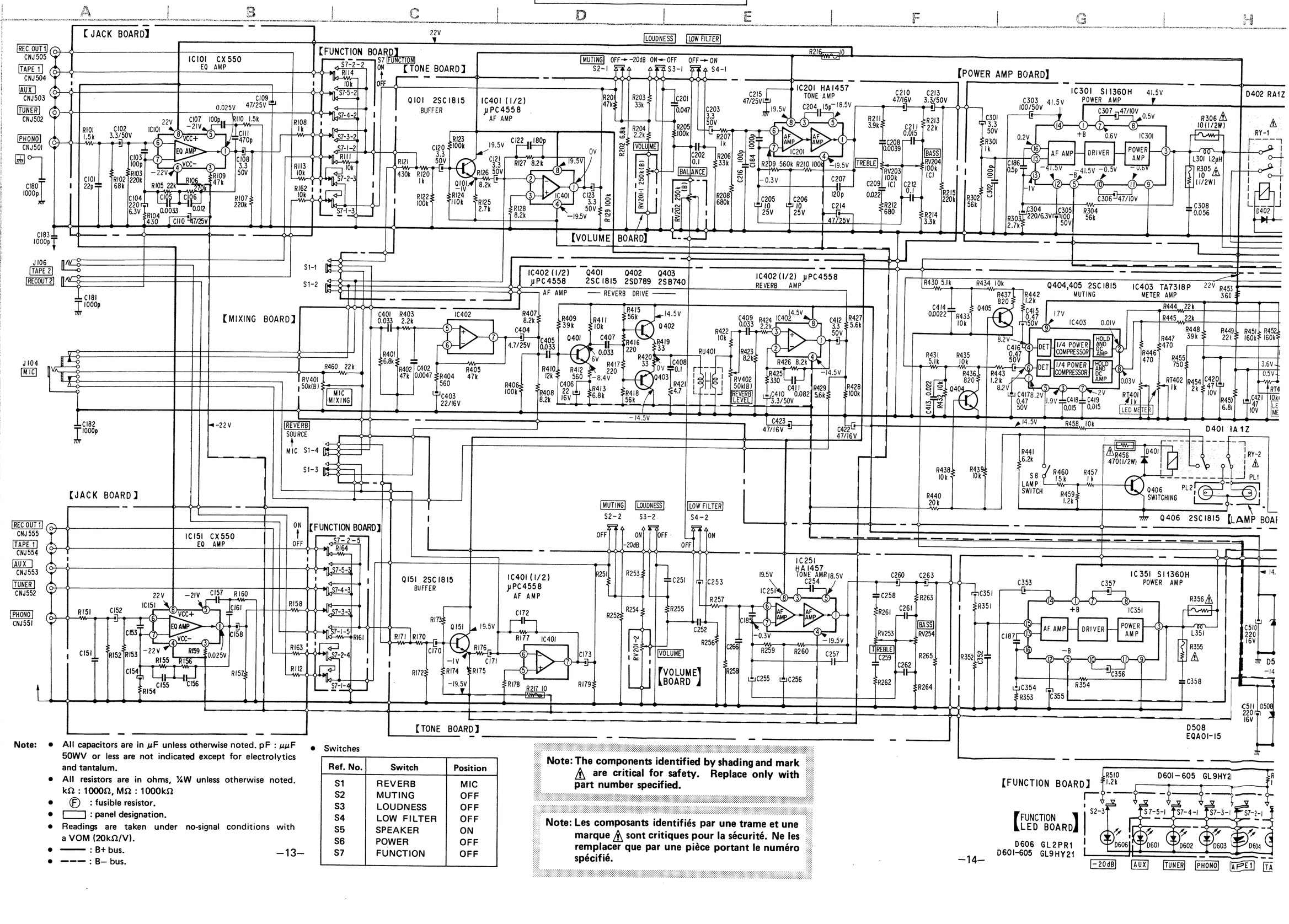
PT501 CP502 0.022 BRN CB501 1.6A CP501 0.022 S6 S6 POWER S6-2 BRN BLU BLU CNP1 AC INPUT SCN MODEL

PT501 CB501 1.6A S6 WHT ORG ON OFF WHT CP501 BRN ORG SWITCHED WHT CNJ1 AC OUTLET UN SWITCHED BRN BLU CNP1 AC INPUT CANADIAN MODEL

PT501 S6 CB501 1.6A CP501 0.022 BRN BLU ORG WHT BRN ORG SWITCHED WHT CNJ1 AC OUTLET UN SWITCHED BRN BLU CNP1 AC INPUT UK MODEL

E1, E2 MODEL PT501 GRY WHT CB501 1.6A CB502 1.6A VIO YEL S6 CP501 0.022 ORG ORG WHT VOLTAGE SELECTOR BRN SWITCHED ORG WHT CNJ1 AC OUTLET UN SWITCHED BRN BLU CNP1 AC INPUT

4-3. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- Ⓕ : fusible resistor.
- ▭ : panel designation.
- Readings are taken under no-signal conditions with a VOM (20kΩ/V).
- ——— : B+ bus.
- – – – : B– bus.

- Switches

Ref. No.	Switch	Position
S1	REVERB	MIC
S2	MUTING	OFF
S3	LOUDNESS	OFF
S4	LOW FILTER	OFF
S5	SPEAKER	ON
S6	POWER	OFF
S7	FUNCTION	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

components identified by shading and mark re critical for safety. Replace only with number specified.

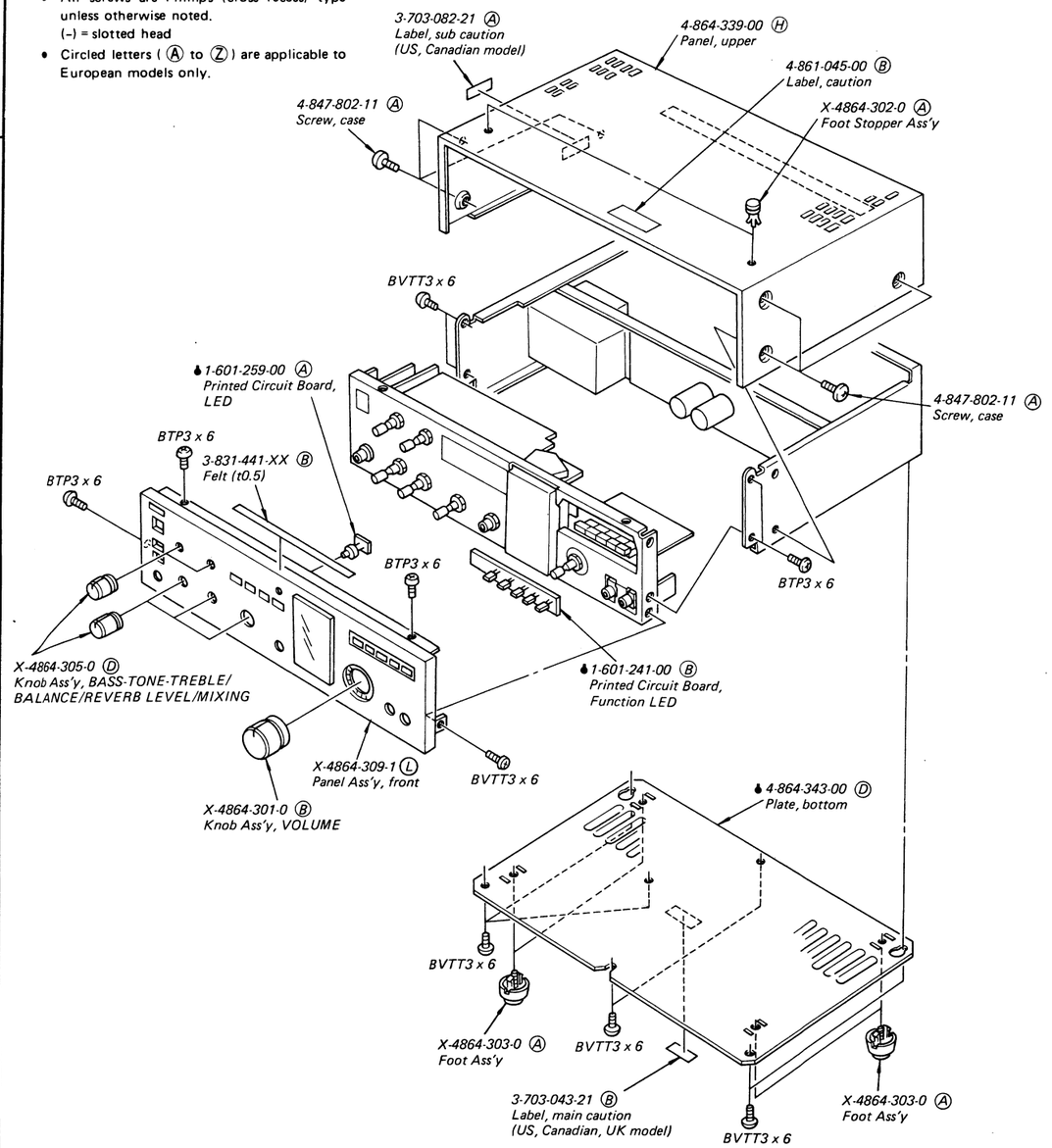
omposants identifiés par une trame et une ue ⚠ sont critiques pour la sécurité. Ne les lacer que par une pièce portant le numéro fié.

SECTION 5
EXPLODED VIEWS

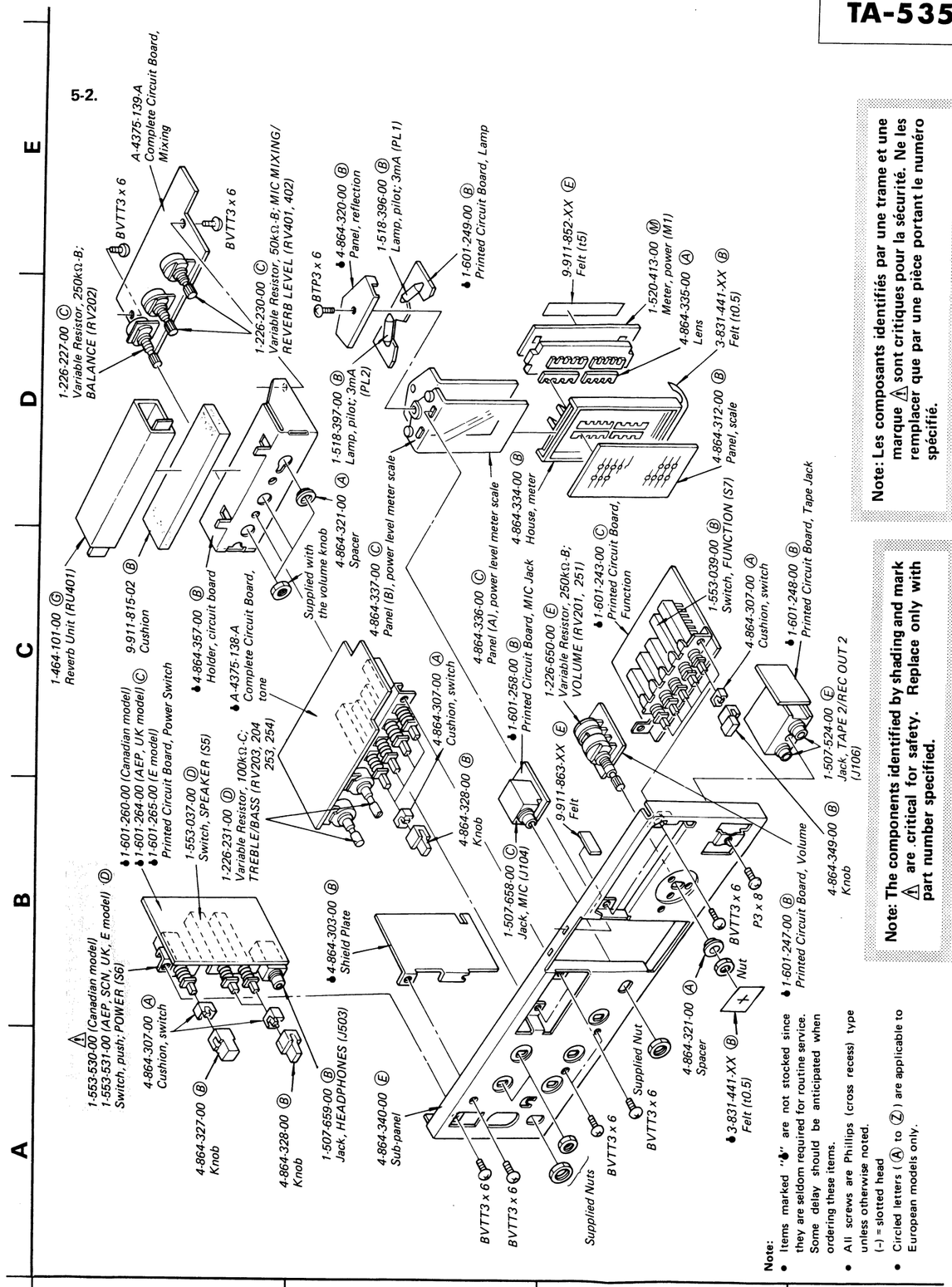
5-1.

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



5-2.

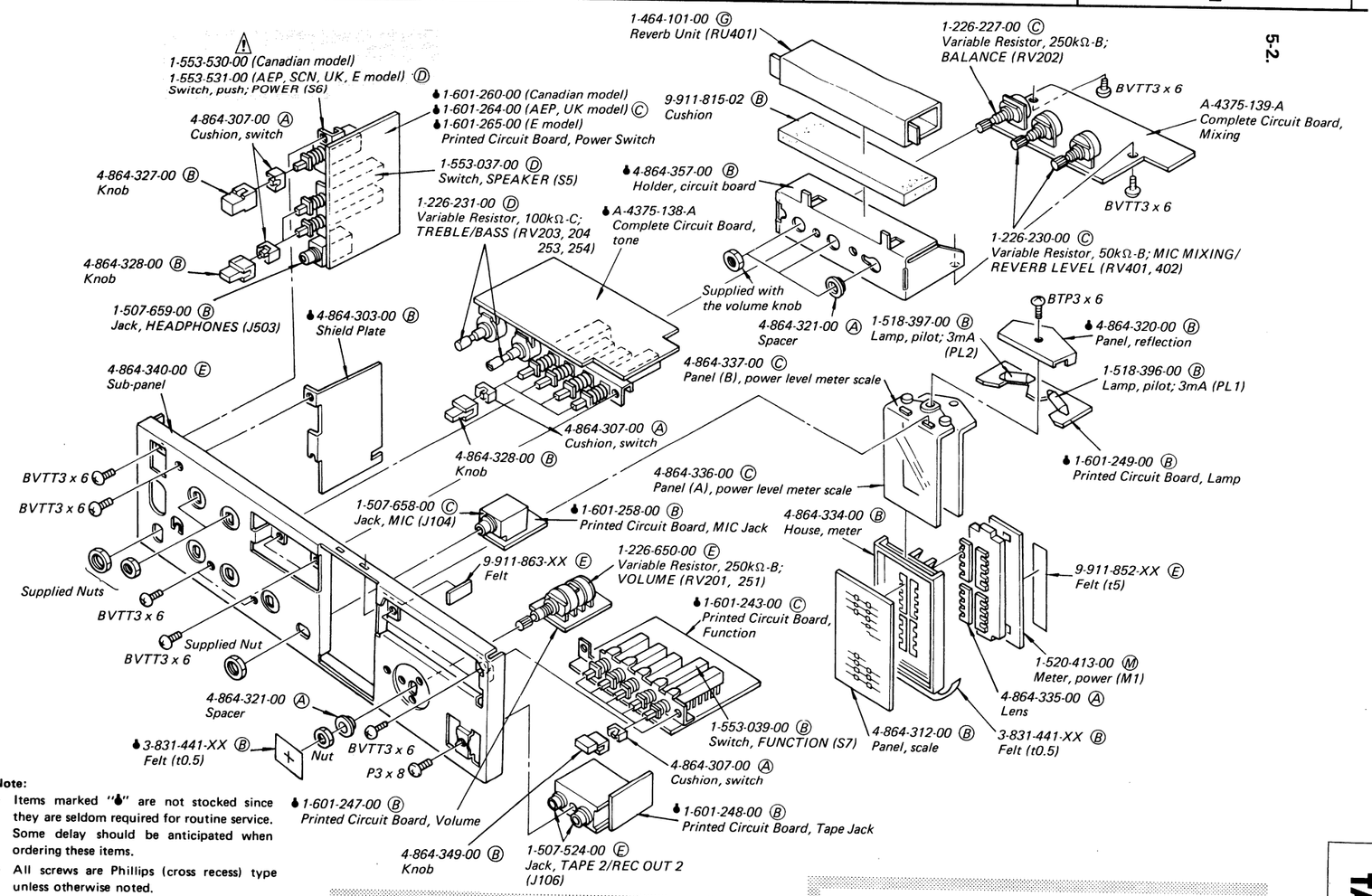


Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

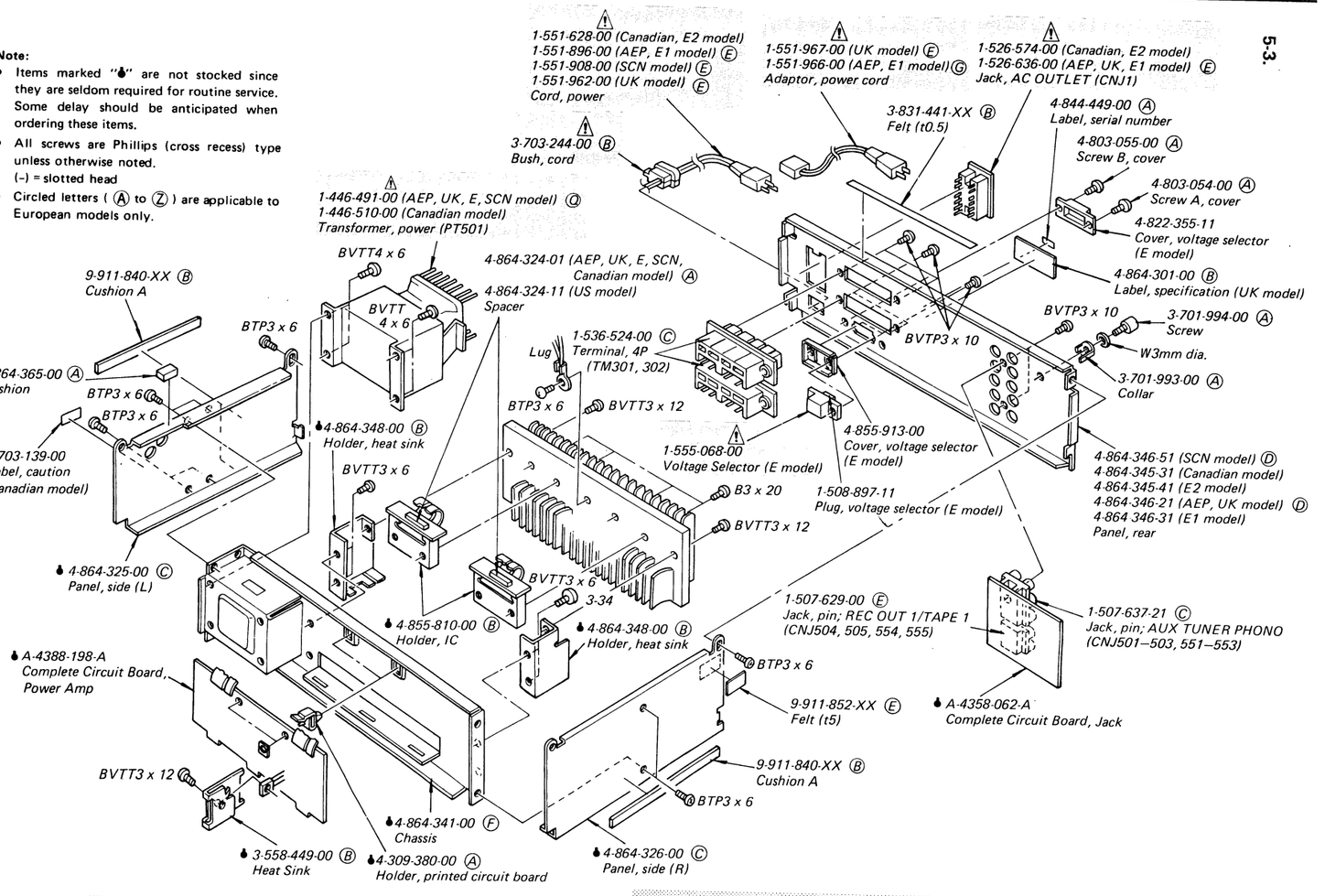


Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*
		COMPLETE CIRCUIT BOARDS
♦	A-4358-062-A	Jack
♦	A-4375-138-A	Tone
♦	A-4375-139-A	Mixing
♦	A-4388-198-A	Power Amp
		PRINTED CIRCUIT BOARDS
♦	1-601-241-00	Ⓑ Function LED
♦	1-601-243-00	Ⓒ Function
♦	1-601-247-00	Ⓑ Volume
♦	1-601-248-00	Ⓑ Tape Jack
♦	1-601-249-00	Ⓑ Lamp
♦	1-601-258-00	Ⓑ MIC Jack
♦	1-601-259-00	Ⓐ LED
♦	1-601-260-00	Power Switch (Canadian model)
♦	1-601-264-00	Ⓒ Power Switch (AEP, UK model)
♦	1-601-265-00	Power Switch (E model)
		SEMICONDUCTORS
		Transistors
⇒	Q101, 151, Q401	8-729-663-47 Ⓑ 2SC1364
⇒	Q402	8-760-413-10 Ⓑ 2SC1475
⇒	Q403	8-729-160-51 Ⓑ 2SB605
⇒	Q404–406	8-729-663-47 Ⓑ 2SC1364
	Q501	8-729-180-93 Ⓑ 2SD809
	Q502	8-729-173-13 Ⓑ 2SB731
⇒	Q503	8-760-413-10 Ⓑ 2SC1475
		ICs
	IC101, 151	8-759-305-50 Ⓓ CX550
	IC201, 251	8-759-314-57 Ⓒ HA1457
⇒	IC301, 351	8-759-313-40 Ⓜ SI1340H
	IC401, 402	8-759-155-58 Ⓒ μPC4558
	IC403	8-759-273-18 Ⓓ TA7318P
	IC404	8-759-320-02 Ⓔ HA12002
		Diodes
⇒	D401–403	8-719-200-02 Ⓑ 10E2
⇒	D501–504	8-719-911-55 Ⓒ U05G
	D505, 506	8-719-931-22 Ⓑ EQB01-22
	D507, 508, D510	8-719-931-15 Ⓑ EQB01-15
⇒	D509	8-719-511-20 Ⓒ S1VB20
	D601–605	8-719-909-23 Ⓑ GL9HY21
⇒	D606	8-719-909-23 Ⓑ GL9HY21
		TRANSFORMERS
	PT501	⚠1-446-491-00 Ⓠ Power (AEP, UK, E, SCN model)
	PT501	⚠1-446-510-00 Power (Canadian model)
		CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics.
Refer to the list on the page 21 and 22 for their part numbers.
p : μμF, elect : electrolytic

C501	1-102-355-00	Ⓑ	0.01	500V	
C502, 503	1-125-857-00	Ⓖ	8200	50V	elect
CP501	⚠1-130-267-00	Ⓒ	0.022	250V	film (UK, E, SCN, AEP model)
CP501	⚠1-231-341-00		Encapsulated Component (Canadian model)		
CP502	⚠1-130-267-00	Ⓒ	0.022	250V	film (SCN model)

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for values. Refer to the list on the page 23 for their part numbers.

R216, 217	1-212-857-00	Ⓑ	10	¼W	fusible (nonflammable)
R305, 306	⚠1-212-958-00	Ⓑ	10	½W	fusible (nonflammable)
R307, 357	⚠1-212-998-51	Ⓑ	470	½W	fusible (nonflammable)
R355, 356	⚠1-212-958-00	Ⓑ	10	½W	fusible (nonflammable)
R456	⚠1-247-232-00	Ⓐ	470	½W	carbon (nonflammable)
R470	1-213-138-00	Ⓐ	390	1W	metal oxide (nonflammable)
R473	⚠1-213-147-00	Ⓐ	2.2k	1W	metal oxide (nonflammable)

⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

• Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*			
R501, 502	⚠1-212-857-00	Ⓐ 10	¼W	fusible (nonflammable)
R505, 506	⚠1-212-898-51	Ⓐ 510	¼W	fusible (nonflammable)
R508	⚠1-212-857-00	Ⓐ 10	¼W	fusible (nonflammable)
RT401,402	1-226-233-00	Ⓑ 1k, adjustable;		
RT403	1-226-236-00	Ⓑ 10k-B, adjustable;		
RV202	1-226-227-00	Ⓒ 250k-B, variable; BALANCE		
RV201, 251	1-226-650-00	Ⓔ 250k-B, variable; VOLUME		
RV203,204 RV253,254	1-226-231-00	Ⓓ 100k-C, variable; TREBLE, BASS		
RV401, 402	1-226-230-00	Ⓒ 50k-B, variable; MIC MIXING REVERB LEVEL		

JACKS

J104	1-507-658-00	Ⓒ MIC
J106	1-507-524-00	Ⓔ TAPE 2, REC OUT 2
J503	1-507-659-00	Ⓑ HEADPHONES
CNJ1	⚠1-526-574-00	AC OUTLET (Canadian, E2 model)
CNJ1	⚠1-526-636-00	Ⓔ AC OUTLET (AEP, UK, E1 model)
CNJ501–503 CNJ551–553	1-507-637-21	Ⓒ Pin, AUX TUNER PHONO
CNJ504,505 CNJ554,555	1-507-629-00	Ⓔ Pin, REC TAPE 1

SWITCHES

S1–4	1-553-038-00	Ⓔ REVERB/MUTING/LOUDNESS LOWFILTER
S5	1-553-037-00	Ⓓ SPEAKER
S6	⚠1-553-530-00	Push, POWER (Canadian model)
S6	⚠1-553-531-00	Ⓓ Push, POWER (AEP, SCN, UK, E model)
S7	1-553-039-00	Ⓔ FUNCTION

MISCELLANEOUS

CB501	⚠1-532-534-00	Ⓒ Braker, circuit (AEP, UK, SCN, E model)
CB501	⚠1-532-448-00	Braker, circuit (Canadian model)
CB502	⚠1-532-534-00	Braker, circuit (E model)
M1	1-520-413-00	Ⓜ Meter, power
PL1	1-518-396-00	Ⓑ Lamp, pilot; 3mA
PL2	1-518-397-00	Ⓑ Lamp, pilot; 3mA

Ref. No.	*Part No.*	*Description*
PTH401	1-800-427-00	Ⓑ Thermistor, positive
RU401	1-464-101-00	Ⓖ Reverb Unit
RY1	⚠1-515-356-11	Ⓕ Relay, power amp protecting
RY2	⚠1-515-360-00	Ⓕ Relay, meter range select
TM301,302	1-536-524-00	Ⓒ Terminal, 4P
	1-508-897-11	Plug, voltage selector (E model)
	⚠1-551-628-00	Cord, power (Canadian, E2 model)
	⚠1-551-896-00	Ⓔ Cord, power (AEP, E1 model)
	⚠1-551-908-00	Ⓔ Cord, power (SCN model)
	⚠1-551-962-00	Ⓔ Cord, power (UK model)
	⚠1-551-966-00	Ⓖ Adaptor, power cord (AEP, E1 model)
	⚠1-551-967-00	Ⓔ Adaptor, power cord (UK model)
	⚠1-555-068-00	Voltage Selector (E model)

ACCESSORIES AND PACKING MATERIALS

Part No.	*Description*
3-701-630-00	Ⓐ Bag, plastic
3-770-994-11	Ⓙ Manual, instruction (AEP, UK, E, SCN model)
3-770-994-21	Manual, instruction (Canadian model)
3-794-578-31	Manual, instruction, french (Canadian model)
4-864-354-00	Ⓑ Sheet, polyethylene
4-864-359-00	Ⓔ Carton
4-864-361-00	Ⓑ Cushion

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTROLYTIC CAPACITORS

Note: Circled letter (Ⓐ to Ⓩ) are applicable to European models only.

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00 Ⓐ
1.0					→	1-121-391-00 Ⓐ
2.2					→	1-121-450-00 Ⓐ
3.3	→	→	→	1-121-392-00 Ⓐ	→	1-121-393-00 Ⓐ
4.7	→	→	→	1-121-395-00 Ⓐ	→	1-121-396-00 Ⓐ
10	→	→	1-121-651-00 Ⓐ	1-121-398-00 Ⓐ	→	1-121-738-00 Ⓐ
22	→	→	1-121-479-00 Ⓐ	1-121-480-00 Ⓐ	1-121-662-00 Ⓐ	1-121-152-00 Ⓐ
33	→	→	1-121-403-00 Ⓐ	1-121-404-00 Ⓐ	1-121-652-00 Ⓑ	1-121-405-00 Ⓐ
47	→	1-121-352-00 Ⓐ	1-121-409-00 Ⓐ	1-121-410-00 Ⓐ	1-121-653-00 Ⓑ	1-121-411-00 Ⓐ
100	→	1-121-414-00 Ⓐ	1-121-415-00 Ⓐ	1-121-416-00 Ⓐ	1-121-357-00 Ⓑ	1-121-417-00 Ⓑ
220	1-121-419-00 Ⓑ	1-121-420-00 Ⓑ	1-121-421-00 Ⓐ	1-121-422-00 Ⓑ	1-121-261-00 Ⓒ	1-121-423-00 Ⓑ
330	1-121-751-00 Ⓑ	1-121-805-00 Ⓑ	1-121-521-00 Ⓒ	1-121-654-00 Ⓑ	1-121-655-00 Ⓓ	1-121-656-00 Ⓒ
470	1-121-424-00 Ⓑ	1-121-425-00 Ⓒ	1-121-426-00 Ⓒ	1-121-733-00 Ⓑ	1-121-361-00 Ⓔ	1-121-810-00 Ⓓ
1000	–	1-121-736-00 Ⓒ	1-121-245-00 Ⓓ	1-121-657-00 Ⓓ	1-121-388-00 Ⓔ	1-123-061-00 Ⓕ
2200	1-121-658-00 Ⓑ	1-121-659-00 Ⓒ	1-121-660-00 Ⓓ	1-123-067-00 Ⓕ	1-121-984-00 Ⓕ	–
3300	1-121-661-00 Ⓓ	1-123-075-00 Ⓔ	1-123-071-00 Ⓕ	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00 Ⓐ	1-123-252-00 Ⓐ	1-123-003-00 Ⓑ	1-121-168-00 Ⓑ
2.2	1-123-250-00 Ⓐ	1-123-026-00 Ⓑ	–	1-123-028-00 Ⓑ
3.3	1-121-995-00 Ⓐ	–	1-123-004-00 Ⓑ	1-123-006-00 Ⓒ
4.7	1-123-255-00 Ⓐ	1-121-246-00 Ⓑ	1-121-759-00 Ⓑ	1-123-007-00 Ⓓ
10	1-121-126-00 Ⓑ	1-121-999-00 Ⓑ	1-123-254-00 Ⓒ	1-123-008-00 Ⓓ
22	1-121-996-00 Ⓒ	1-123-253-00 Ⓒ	1-123-005-00 Ⓓ	1-123-022-00 Ⓓ
33	1-121-997-00 Ⓒ	1-121-757-00 Ⓒ	–	–
47	1-123-251-00 Ⓒ	1-121-919-00 Ⓒ	–	–
100	1-123-084-00 Ⓔ	–	–	–

CERAMIC CAPACITORS Ⓐ

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

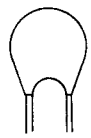
CERAMIC (SEMICONDUCTOR) CAPACITORS Ⓐ

CAP. (μF)	RATING → : Use the high voltage rated one.				
	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS Ⓐ

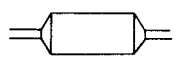
Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one. 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00 Ⓑ
0.015						→	1-131-397-00 Ⓑ
0.022						→	1-131-398-00 Ⓑ
0.033						→	1-131-399-00 Ⓑ
0.047						→	1-131-400-00 Ⓑ
0.068					→	→	1-131-401-00 Ⓑ
0.1					→	→	1-131-402-00 Ⓑ
0.15					→	→	1-131-403-00 Ⓑ
0.22					→	→	1-131-404-00 Ⓑ
0.33					→	1-131-409-00 Ⓑ	1-131-405-00 Ⓑ
0.47	–	–	–	–	1-131-412-00 Ⓑ	→	1-131-406-00 Ⓑ
0.68	–	–	–	1-131-415-00 Ⓑ	→	1-131-410-00 Ⓑ	1-131-407-00 Ⓑ
1.0	–	–	1-131-418-00 Ⓑ	–	1-131-413-00 Ⓑ	→	1-131-408-00 Ⓑ
1.5	–	1-131-421-00 Ⓑ	–	1-131-416-00 Ⓑ	→	1-131-411-00 Ⓑ	1-131-348-00 Ⓑ
2.2	1-131-424-00 Ⓑ	–	1-131-419-00 Ⓑ	–	1-131-414-00 Ⓑ	1-131-355-00 Ⓑ	1-131-349-00 Ⓑ
3.3	–	1-131-422-00 Ⓑ	–	1-131-417-00 Ⓑ	1-131-362-00 Ⓑ	1-131-356-00 Ⓑ	1-131-350-00 Ⓑ
4.7	1-131-425-00 Ⓑ	–	1-131-420-00 Ⓑ	1-131-369-00 Ⓑ	1-131-363-00 Ⓑ	1-131-357-00 Ⓑ	1-131-351-00 Ⓒ
6.8	–	1-131-423-00 Ⓑ	1-131-376-00 Ⓑ	1-131-370-00 Ⓑ	1-131-364-00 Ⓑ	1-131-358-00 Ⓒ	1-131-352-00 Ⓒ
10	1-131-426-00 Ⓑ	1-131-383-00 Ⓑ	1-131-377-00 Ⓑ	1-131-371-00 Ⓑ	1-131-365-00 Ⓒ	1-131-359-00 Ⓒ	1-131-353-00 Ⓓ
15	1-131-390-00 Ⓑ	1-131-384-00 Ⓑ	1-131-378-00 Ⓑ	1-131-372-00 Ⓑ	1-131-366-00 Ⓒ	1-131-360-00 Ⓓ	–
22	1-131-391-00 Ⓑ	1-131-385-00 Ⓑ	1-131-379-00 Ⓒ	1-131-373-00 Ⓒ	1-131-367-00 Ⓓ		
33	1-131-392-00 Ⓑ	1-131-386-00 Ⓒ	1-131-380-00 Ⓒ	1-131-374-00 Ⓓ			
47	1-131-393-00 Ⓒ	1-131-387-00 Ⓒ	1-131-381-00 Ⓓ	–			
68	1-131-394-00 Ⓑ	1-131-388-00 Ⓒ	–	–			
100	1-131-395-00 Ⓓ	–	–	–			



TANTALUM CAPACITORS

CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00 Ⓔ
0.047						1-131-274-00 Ⓔ
0.068						1-131-275-00 Ⓔ
0.1						1-131-276-00 Ⓓ
0.15						1-131-277-00 Ⓓ
0.22			–	–	1-131-262-00 Ⓓ	1-131-278-00 Ⓓ
0.33			–	–	1-131-263-00 Ⓓ	1-131-279-00 Ⓓ
0.47			1-131-169-00 Ⓓ	–	1-131-264-00 Ⓓ	1-131-280-00 Ⓓ
0.68			–	1-131-258-00 Ⓓ	1-131-265-00 Ⓓ	1-131-281-00 Ⓓ
1.0			1-131-254-00 Ⓓ	–	1-131-266-00 Ⓓ	1-131-282-00 Ⓓ
1.5		1-131-250-00 Ⓓ	–	–	1-131-267-00 Ⓓ	1-131-283-00 Ⓔ
2.2		–	–	1-131-259-00 Ⓓ	1-131-268-00 Ⓓ	1-131-284-00 Ⓔ
3.3		–	1-131-255-00 Ⓓ	–	1-131-269-00 Ⓓ	–
4.7		1-131-251-00 Ⓔ	1-131-171-00 Ⓓ	–	1-131-270-00 Ⓓ	–
6.8		–	–	1-131-260-00 Ⓓ	1-131-271-00 Ⓔ	–
10	–	–	1-131-256-00 Ⓓ	–	1-131-272-00 Ⓔ	–
15	–	1-131-252-00 Ⓓ	–	1-131-261-00 Ⓔ		
22	–	–	1-131-257-00 Ⓔ	–		
33	1-131-176-00 Ⓓ	1-131-253-00 Ⓔ	1-131-173-00 Ⓒ	–		
47	1-131-288-00 Ⓕ	1-131-174-00 Ⓓ	–	–		
100	1-131-177-00 Ⓓ					

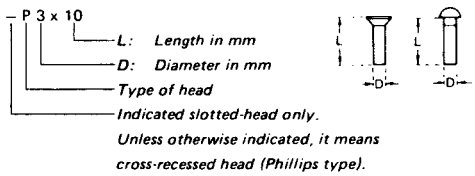
1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

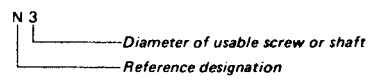
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH	Ⓐ	pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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